

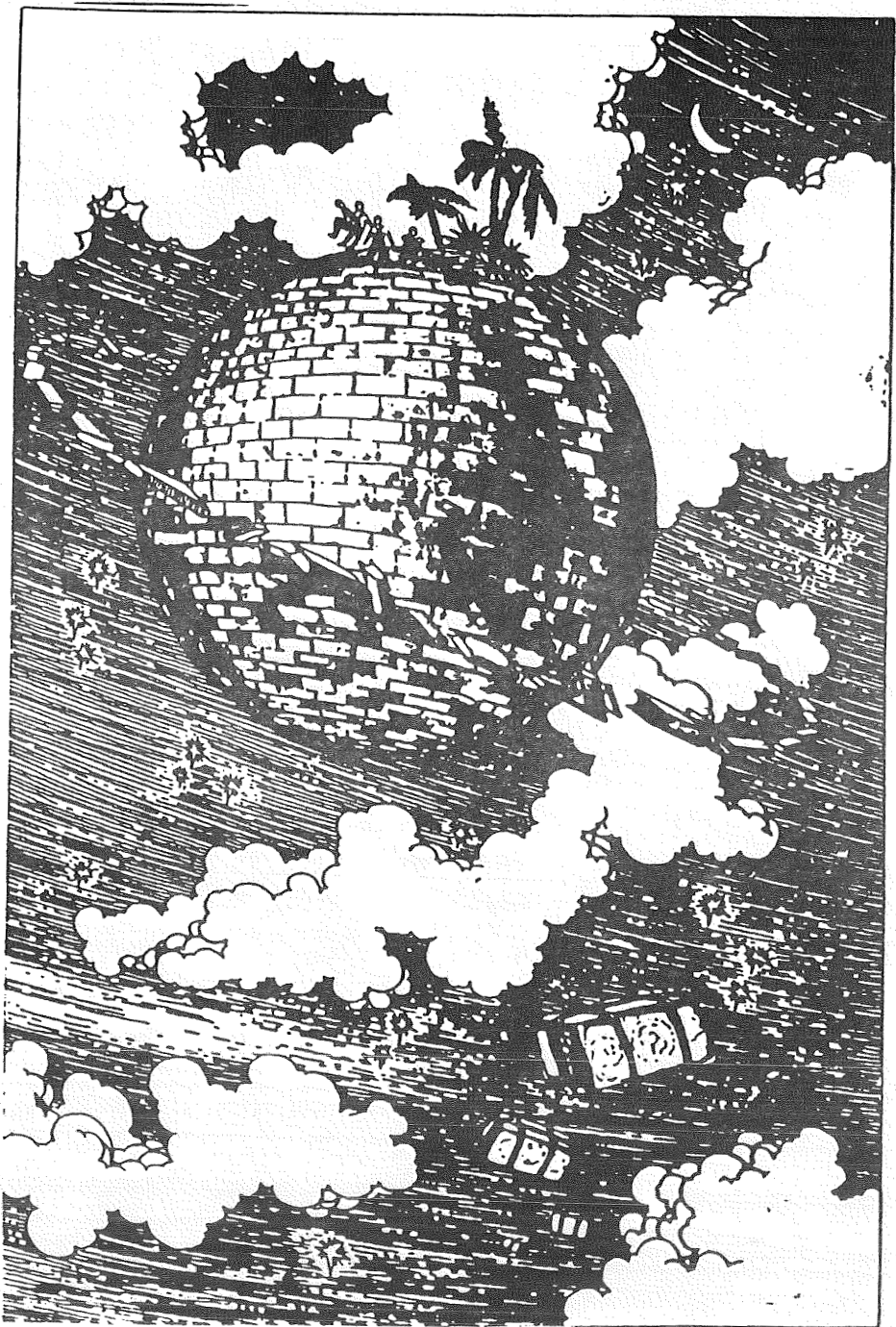
# **Space Directorate**

## **A HISTORICAL PERSPECTIVE ON SPACE STATION**

**W. RAY HOOK  
DIRECTOR FOR SPACE  
LANGLEY RESEARCH CENTER**

**SPACE STATION EVOLUTION  
BEYOND THE BASELINE  
SOUTH SHORE HARBOUR RESORT AND CONFERENCE CENTER  
LEAGUE CITY, TEXAS  
AUGUST 7, 1991**





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204 INTERNATIONAL ROOM

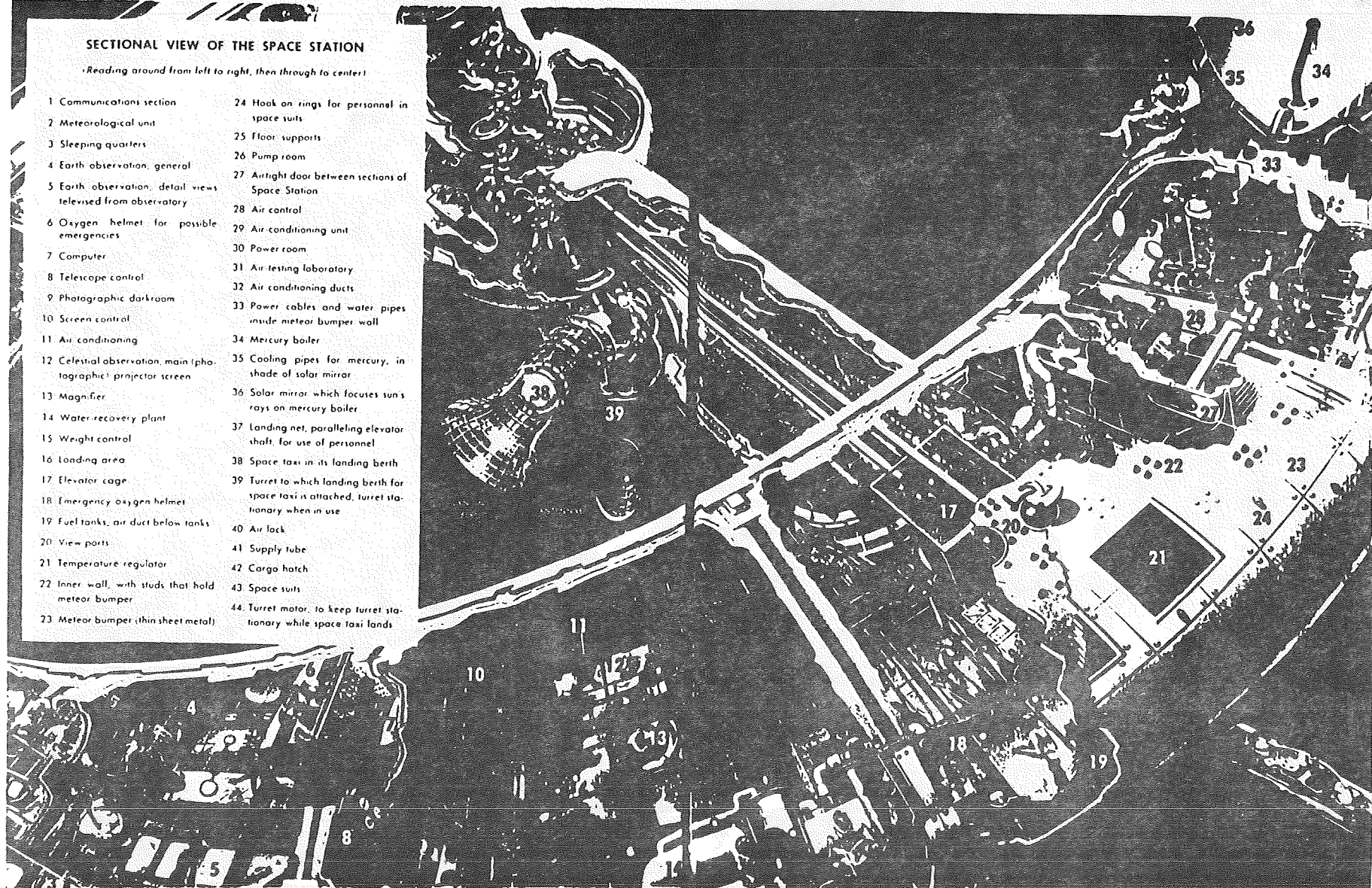


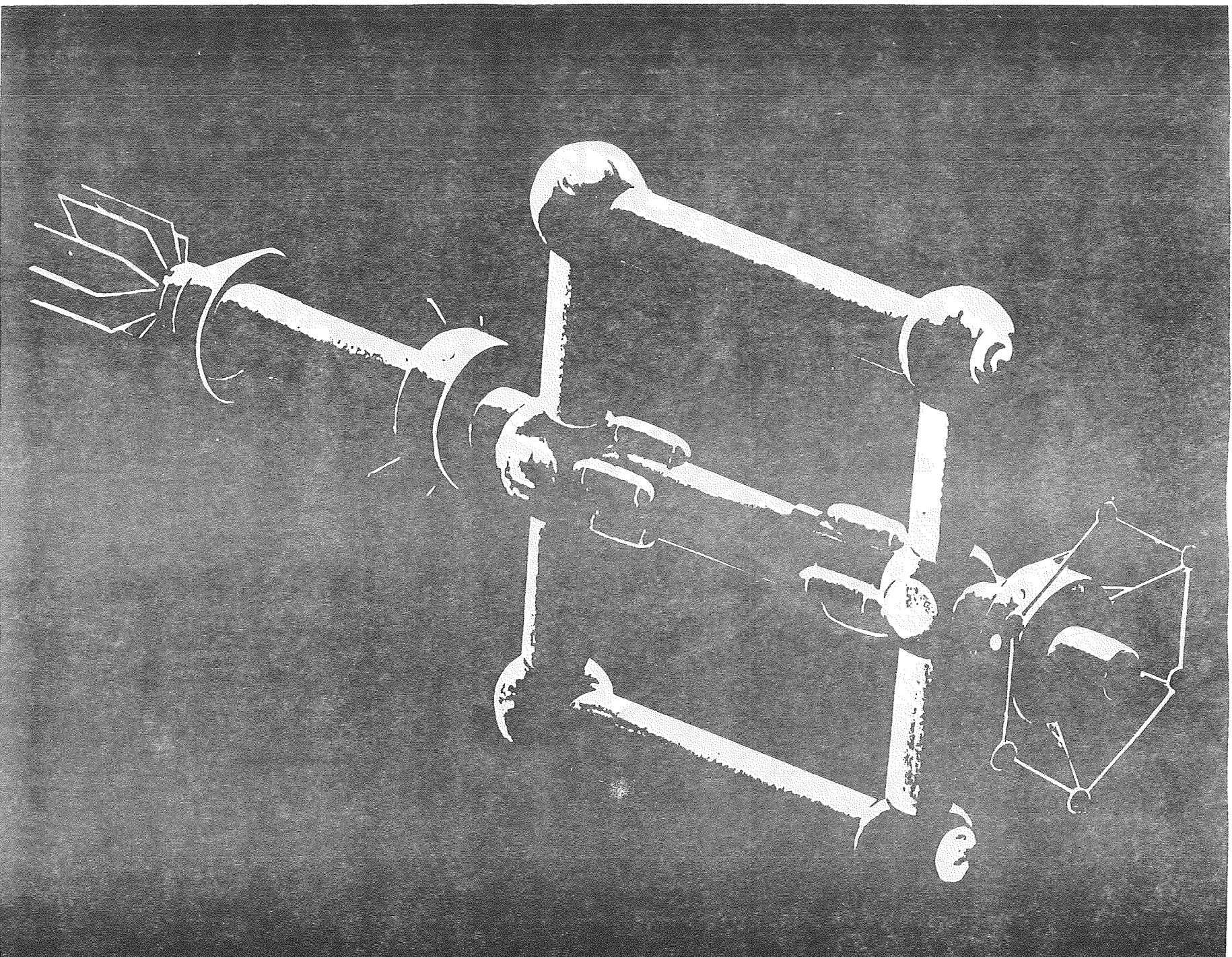


# SECTIONAL VIEW OF THE SPACE STATION

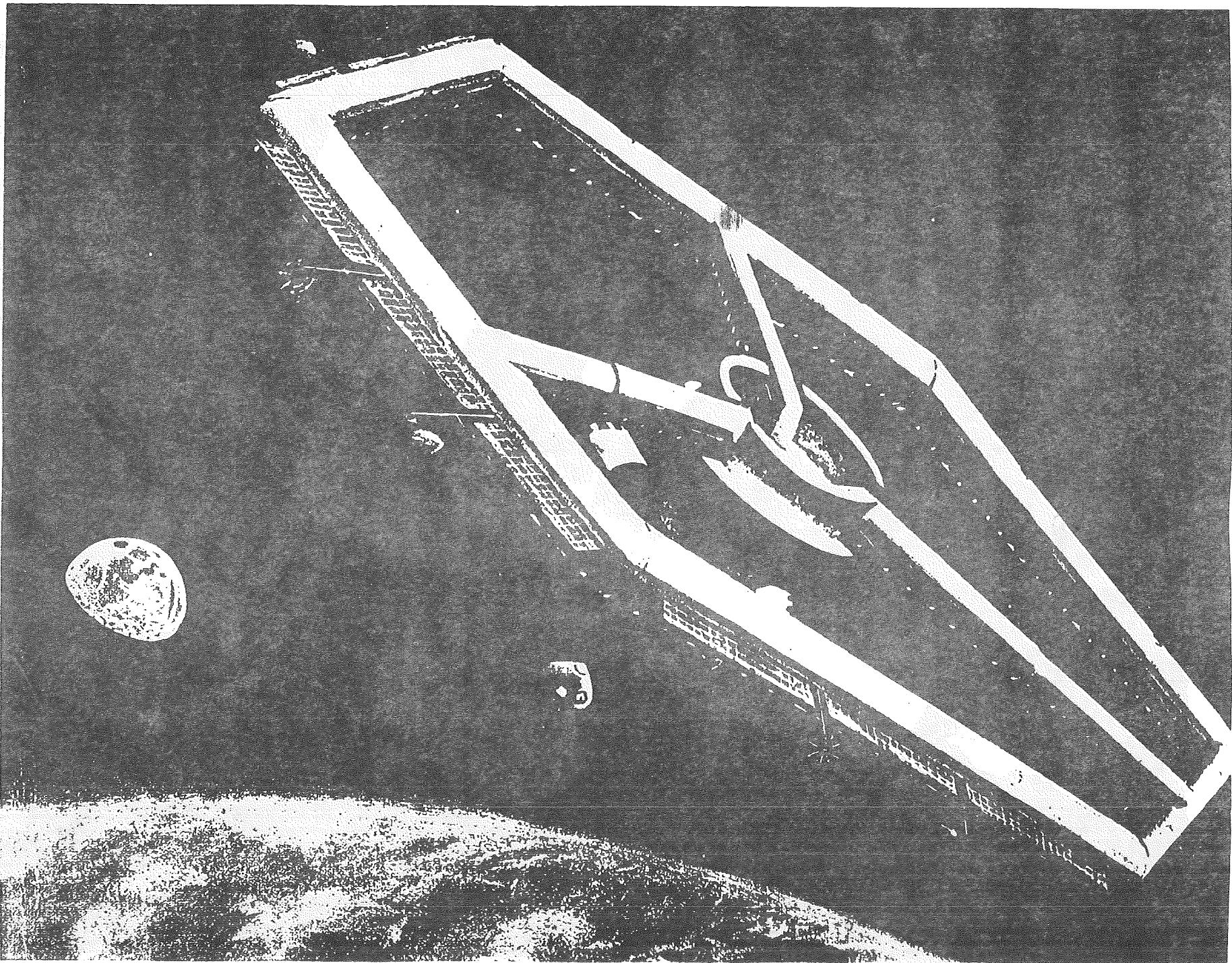
(Reading around from left to right, then through to center)

- 1 Communications section
- 2 Meteorological unit
- 3 Sleeping quarters
- 4 Earth observation, general
- 5 Earth observation, detail views televised from observatory
- 6 Oxygen helmet for possible emergencies
- 7 Computer
- 8 Telescope control
- 9 Photographic darkroom
- 10 Screen control
- 11 Air conditioning
- 12 Celestial observation main (photographic) projector screen
- 13 Magnifier
- 14 Water-recovery plant
- 15 Weight control
- 16 Loading area
- 17 Elevator cage
- 18 Emergency oxygen helmet
- 19 Fuel tanks, air duct below tanks
- 20 View ports
- 21 Temperature regulator
- 22 Inner wall, with studs that hold meteor bumper
- 23 Meteor bumper (thin sheet metal)
- 24 Hook on rings for personnel in space suits
- 25 Floor supports
- 26 Pump room
- 27 Airtight door between sections of Space Station
- 28 Air control
- 29 Air conditioning unit
- 30 Power room
- 31 Air testing laboratory
- 32 Air conditioning ducts
- 33 Power cables and water pipes inside meteor bumper wall
- 34 Mercury boiler
- 35 Cooling pipes for mercury, in shade of solar mirror
- 36 Solar mirror which focuses sun's rays on mercury boiler
- 37 Landing net, paralleling elevator shaft, for use of personnel
- 38 Space taxi in its landing berth
- 39 Turret to which landing berth for space taxi is attached, turret stationary when in use
- 40 Air lock
- 41 Supply tube
- 42 Cargo hatch
- 43 Space suits
- 44 Turret motor, to keep turret stationary while space taxi lands



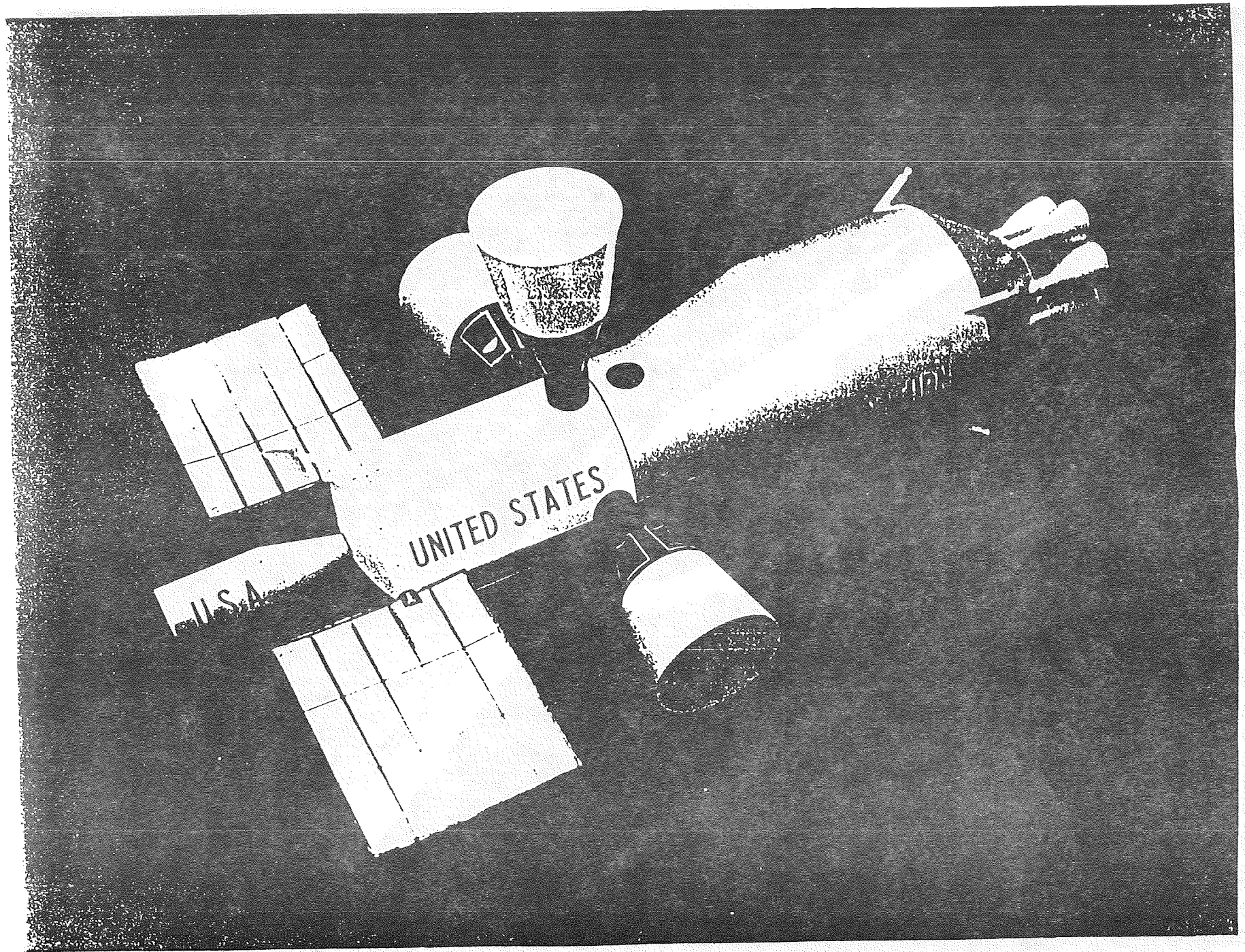




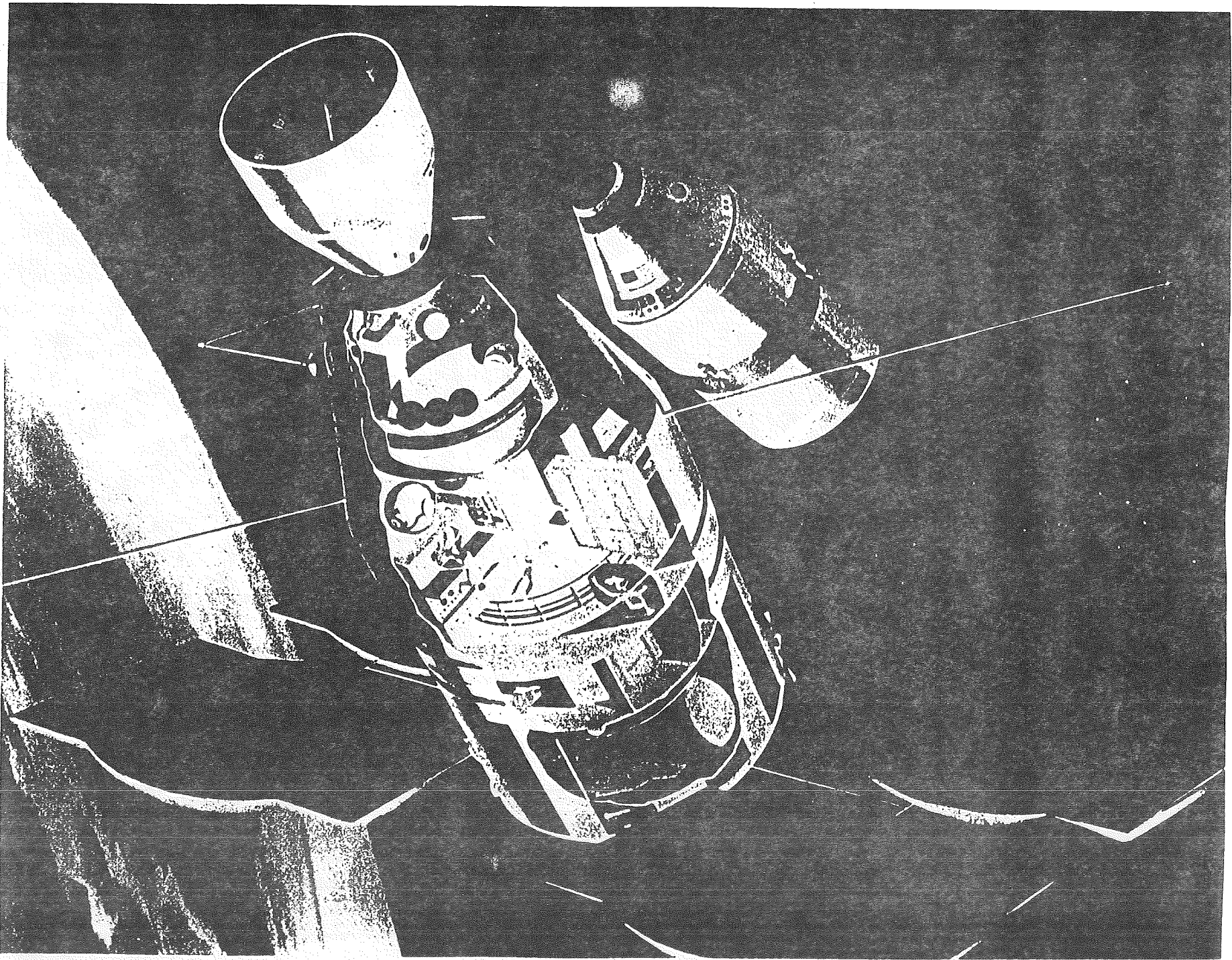


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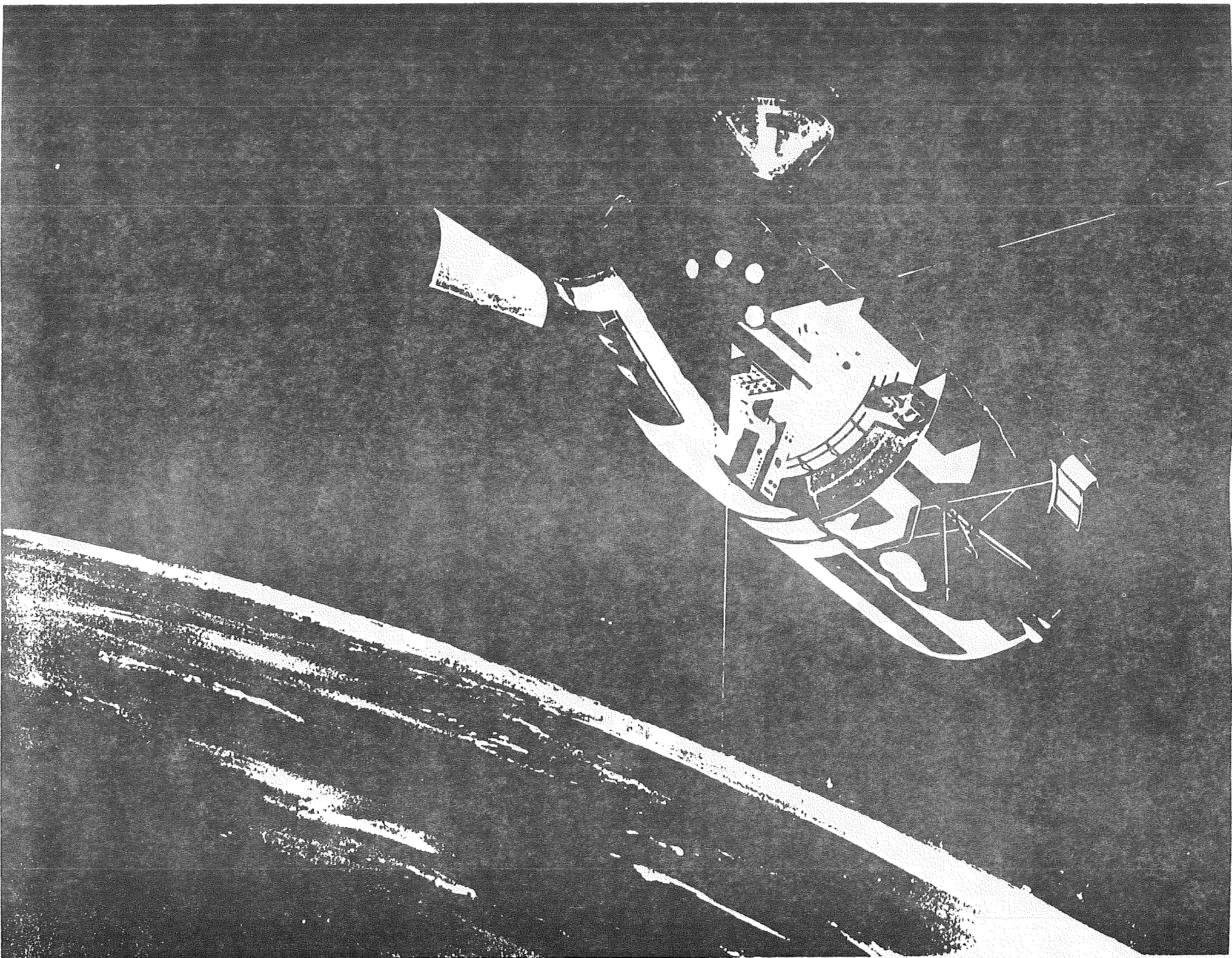




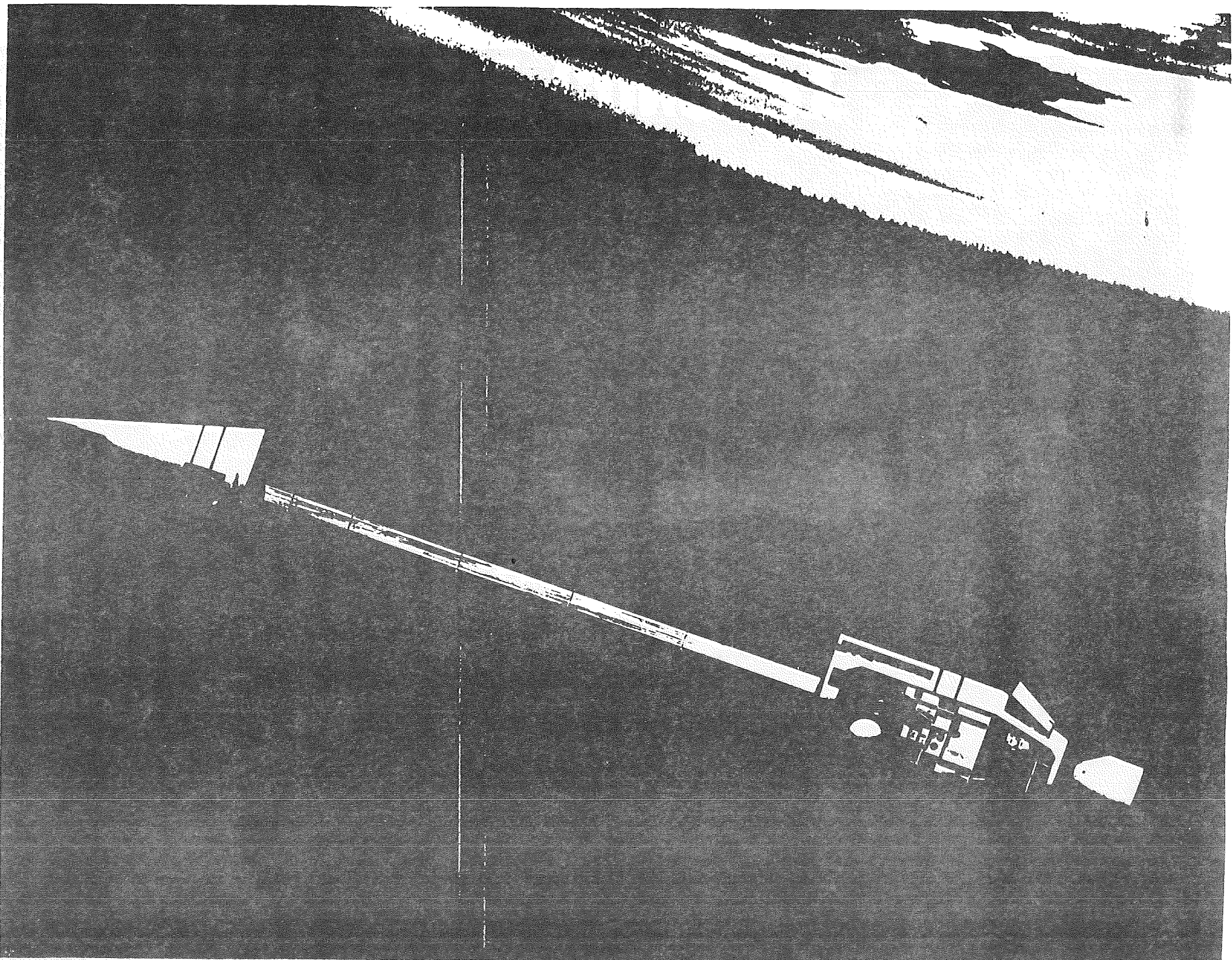


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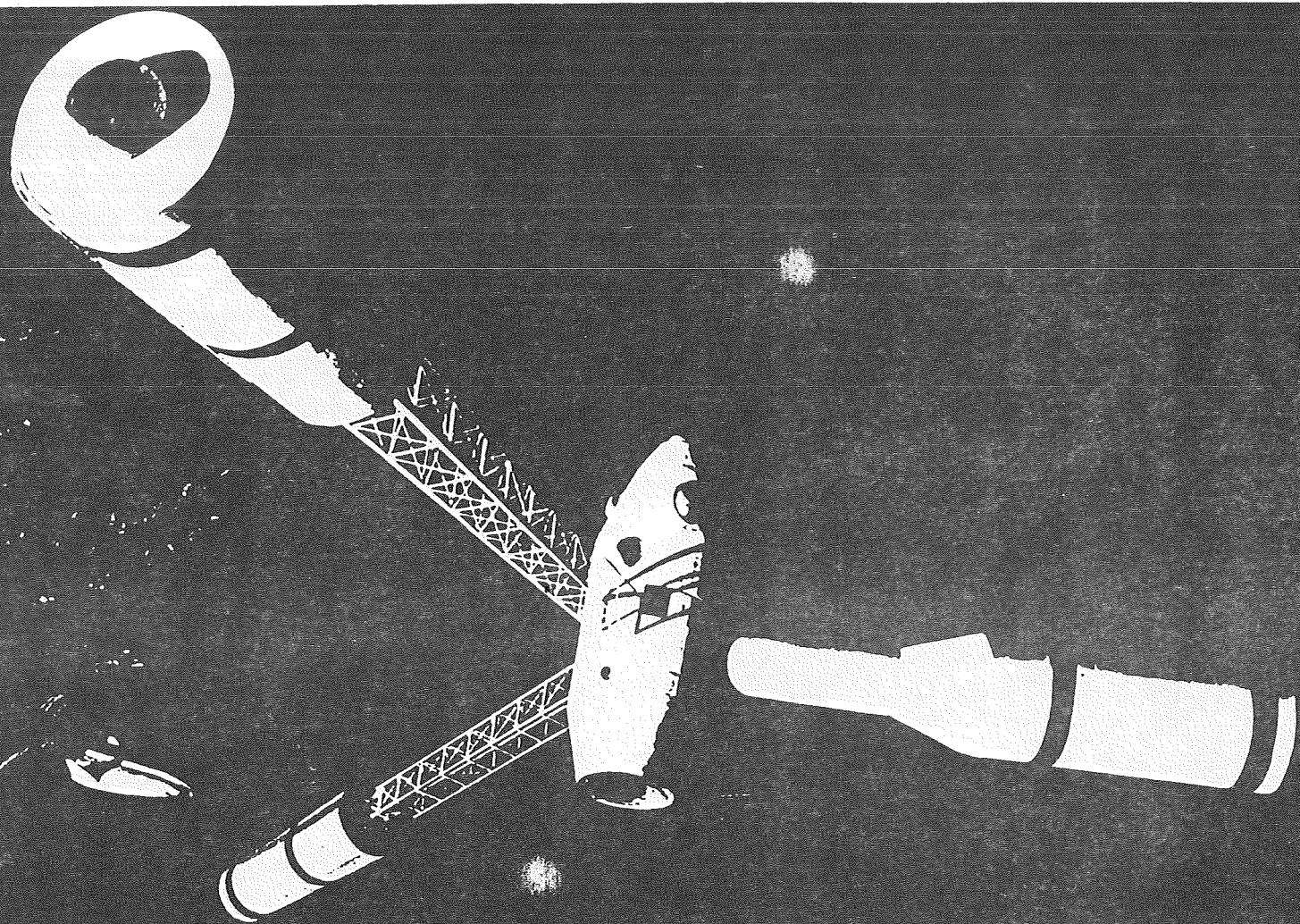






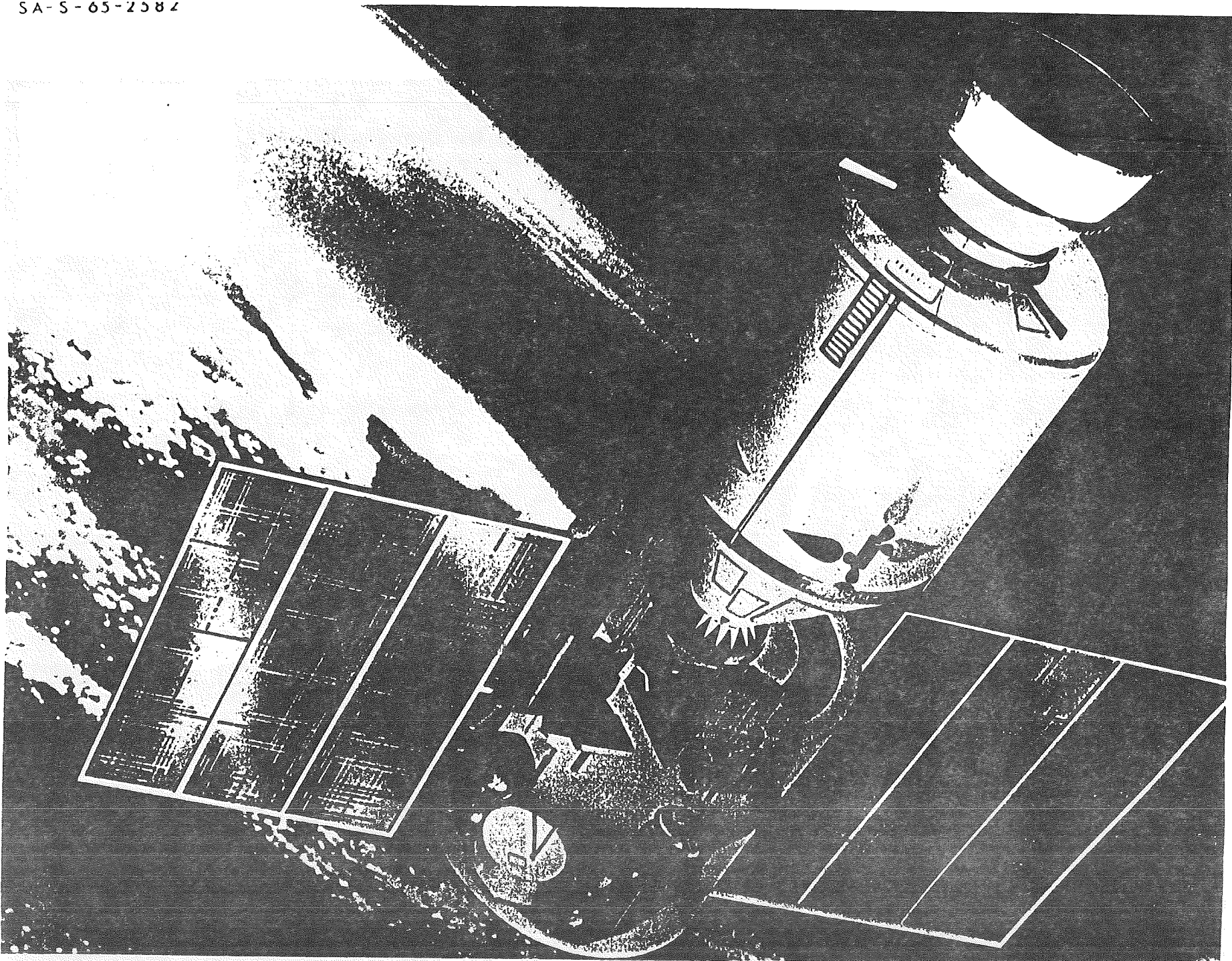
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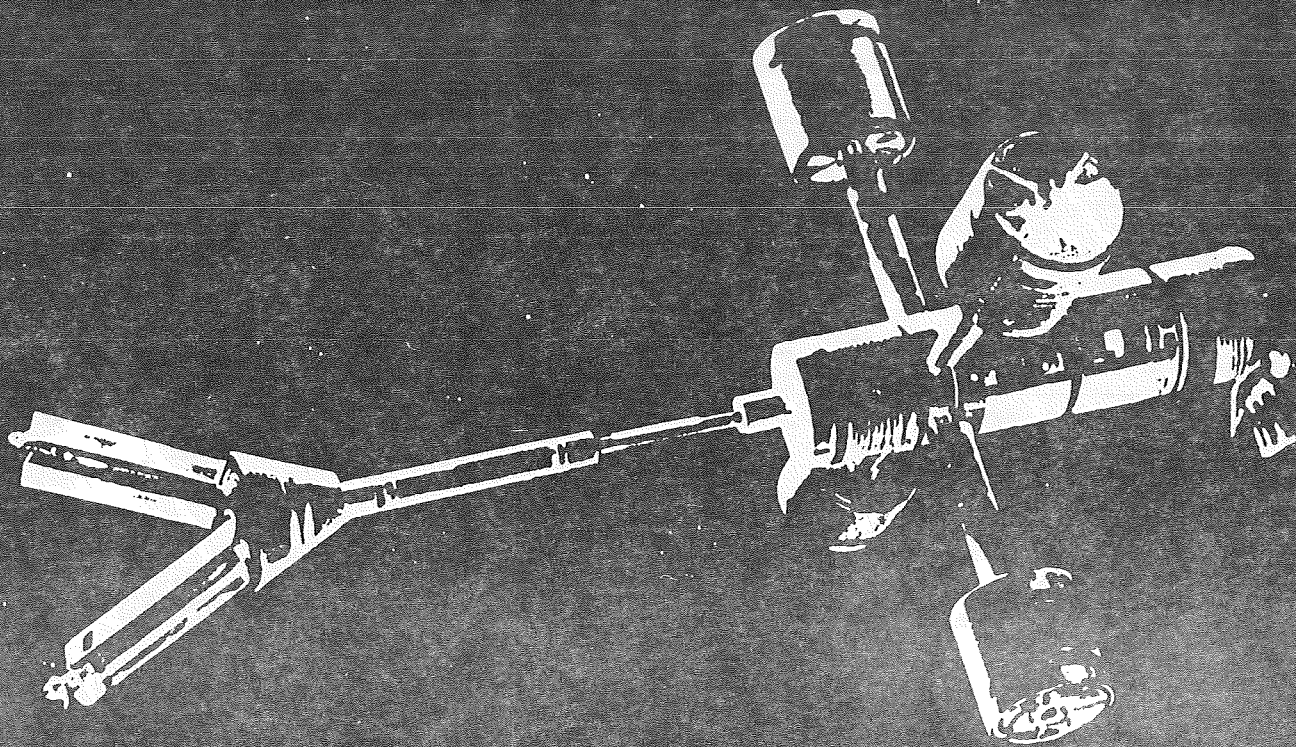
# SPACE BASE CONCEPT





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NORTH  
AMERICAN  
ROCKWELL

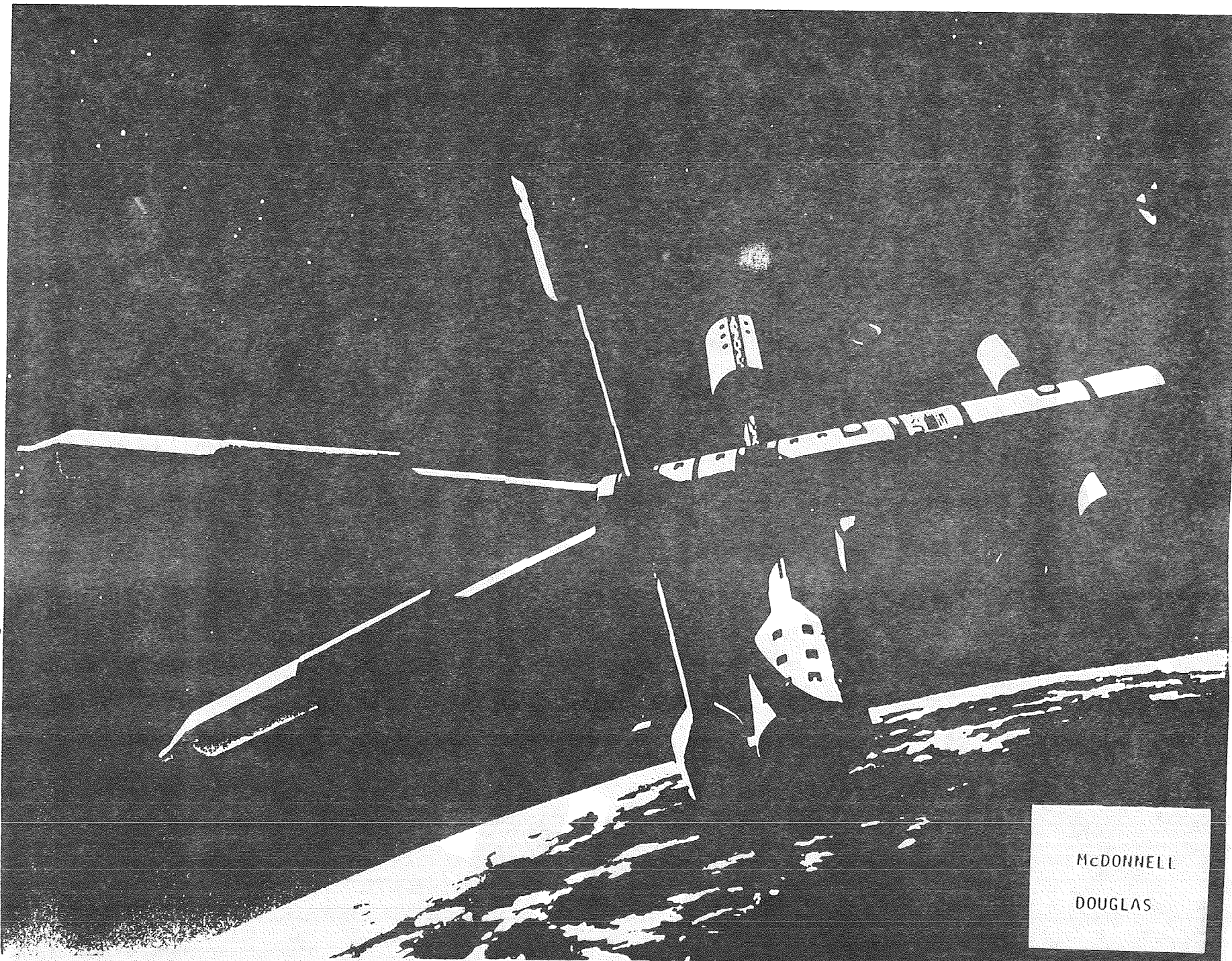
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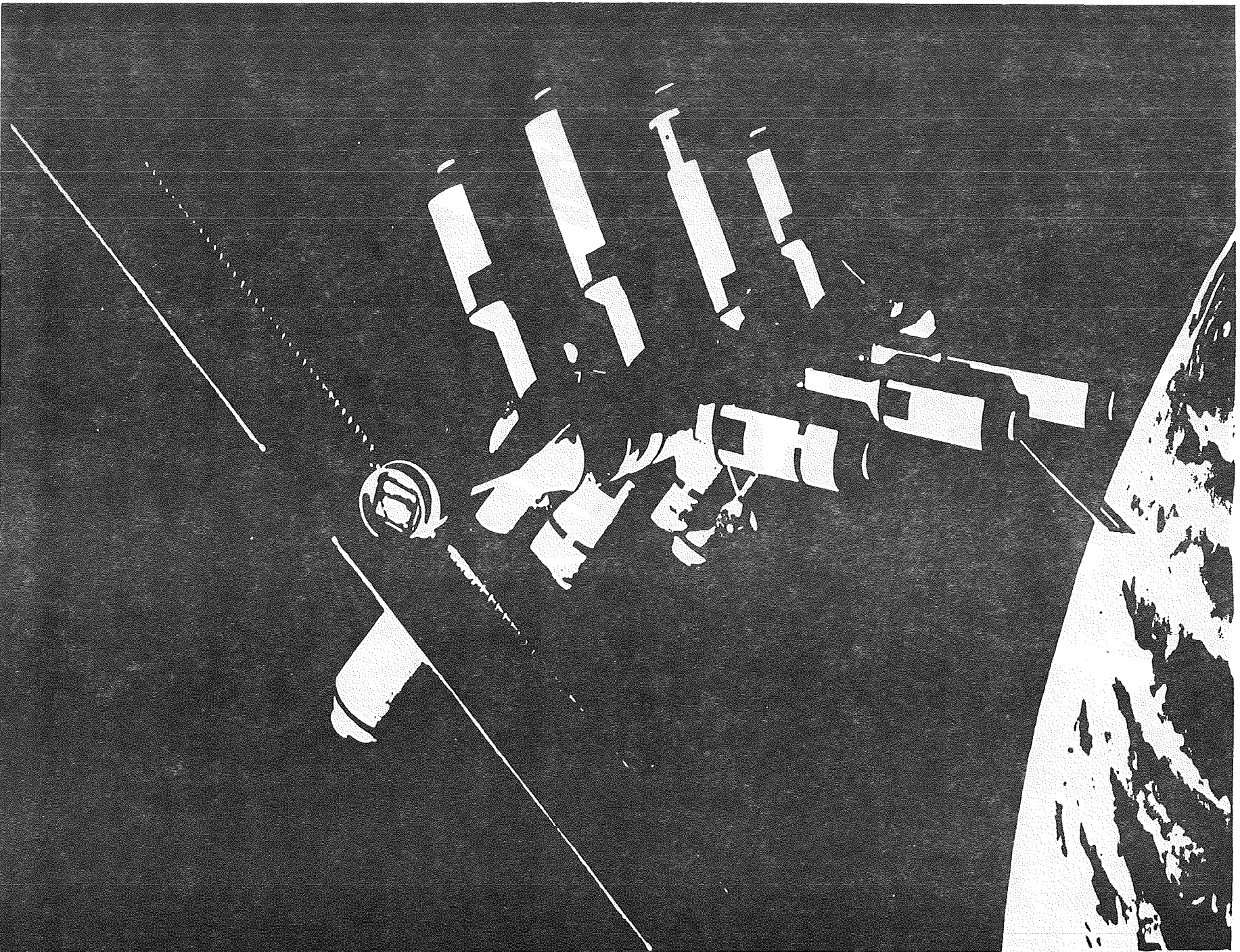
217

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MCDONNELL  
DOUGLAS





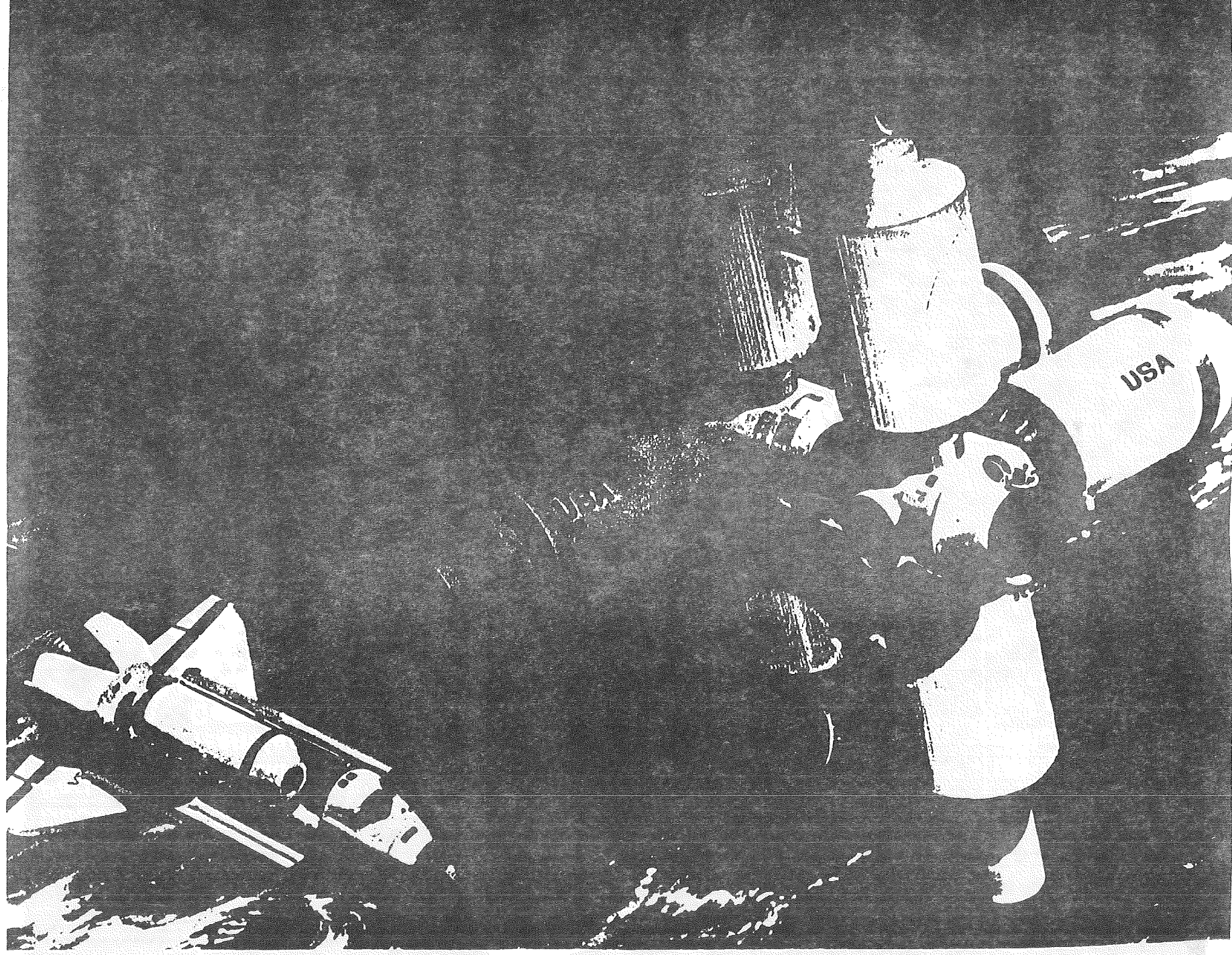
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# SALYUT 6

Forward  
Docking  
Port

Airlock/  
Transfer  
Compartment

Work Compartment  
Primary Controls,  
Dining, Sleeping

Work  
Compartment

Length 12-1/2 Ft

Width 9-1/2 Ft

Experiment  
Operations  
Module

Length 14 Ft

Width 14 Ft

Aft Docking Port

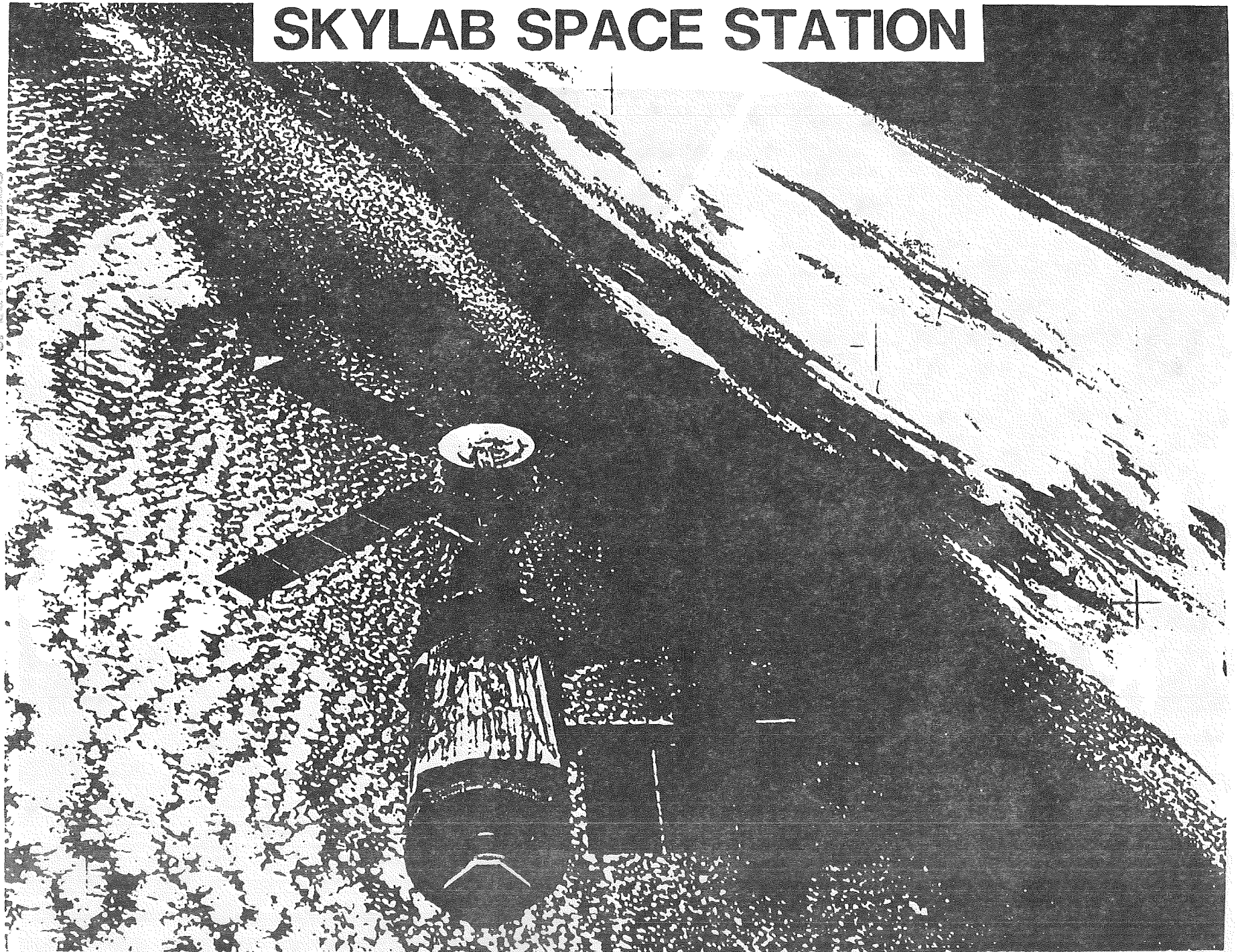
Soyuz  
Command  
Module

Experiment/  
Operations  
Module

Service/  
Propulsion  
Module

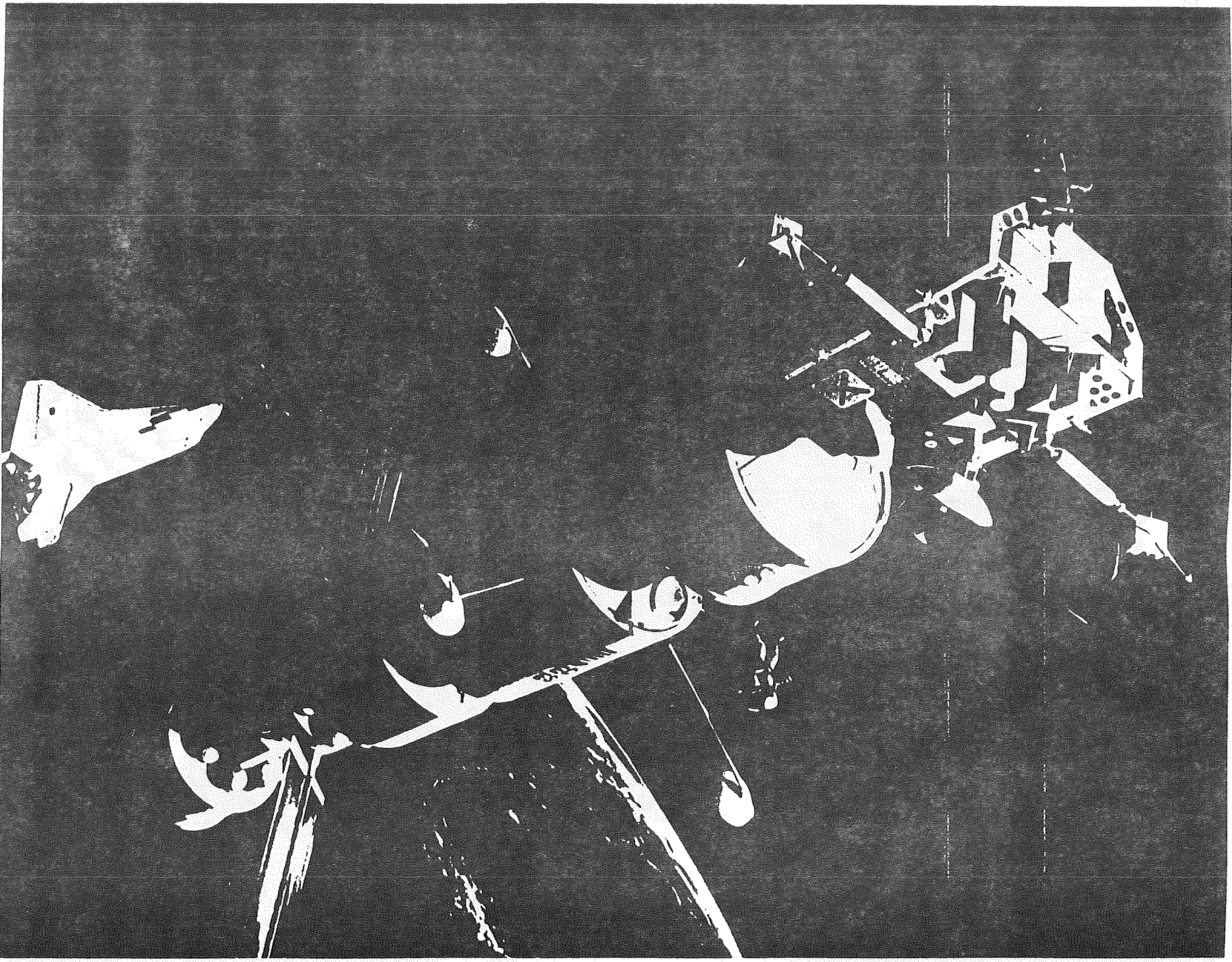
~65 Ft With Soyuz Docked  
3500 Ft<sup>3</sup> Habitable Volume

# SKYLAB SPACE STATION



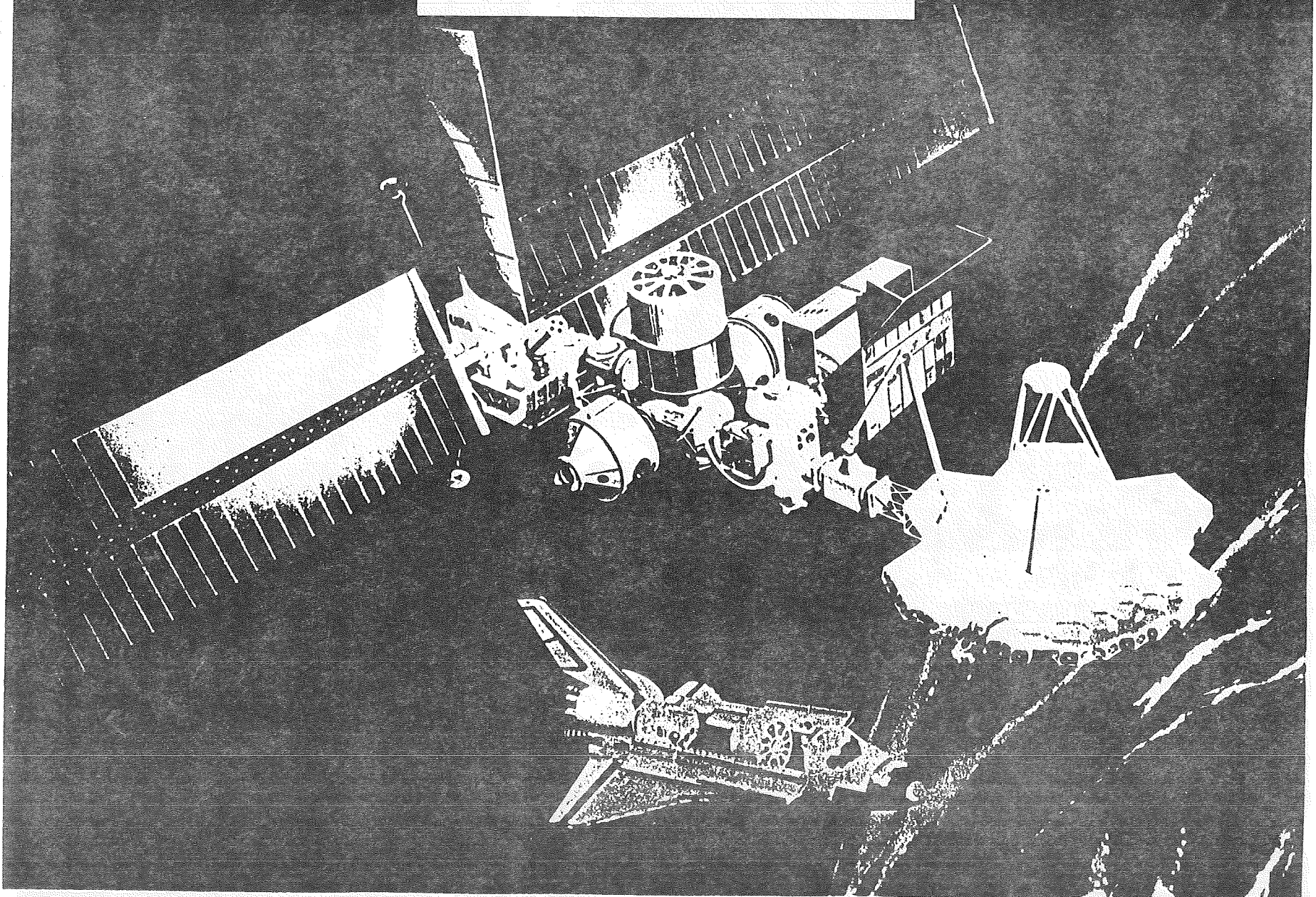
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# MANNED SCIENCE AND APPLICATIONS SPACE PLATFORM

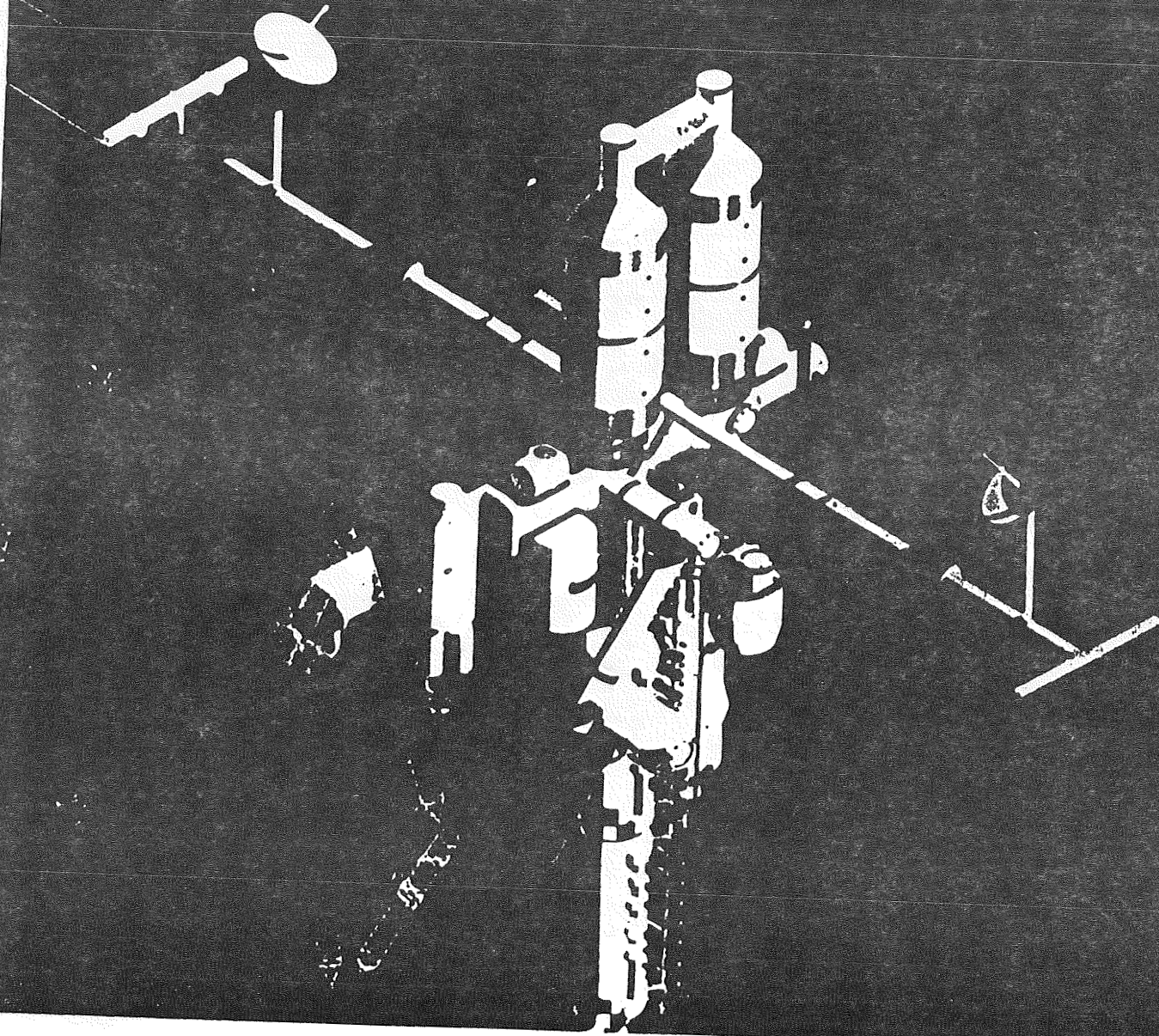


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NASA

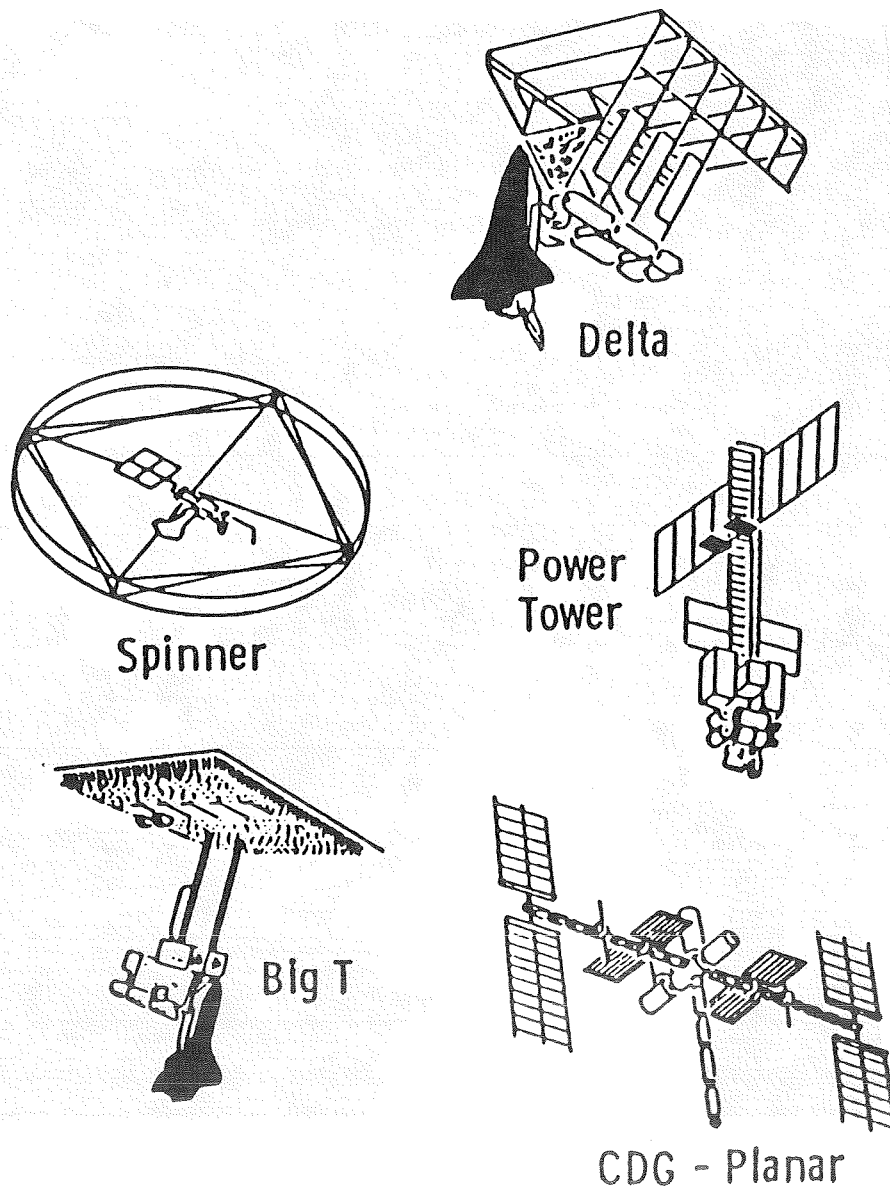
# Evolutionary Growth SOC



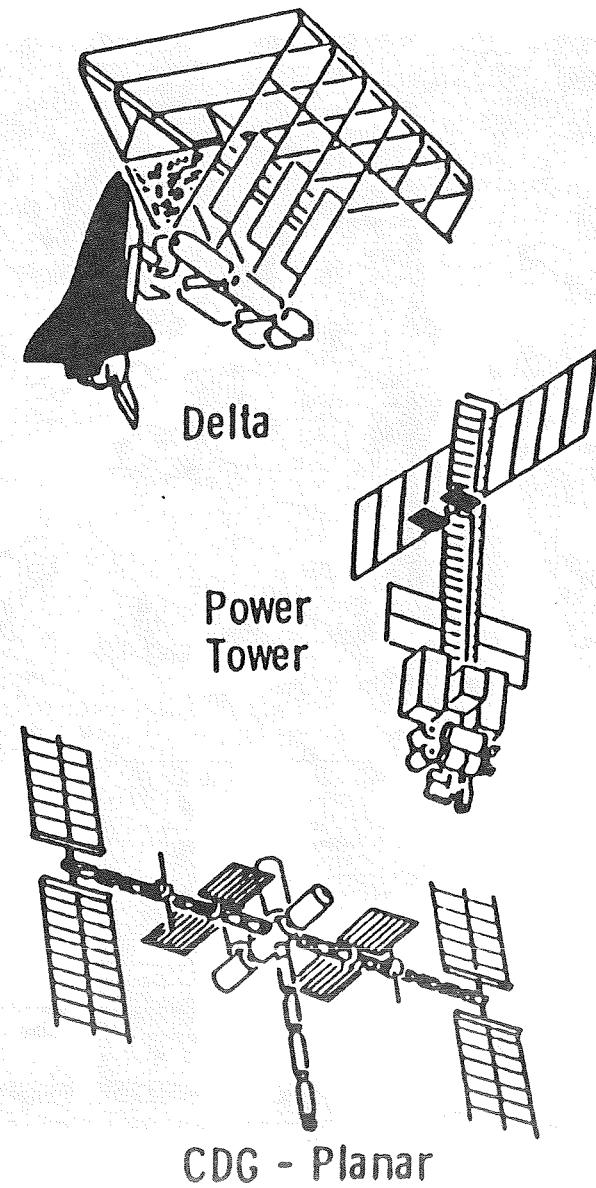


# CONFIGURATION CONCEPT OPTIONS (SKUNK WORKS)

## 5 Candidate Concepts

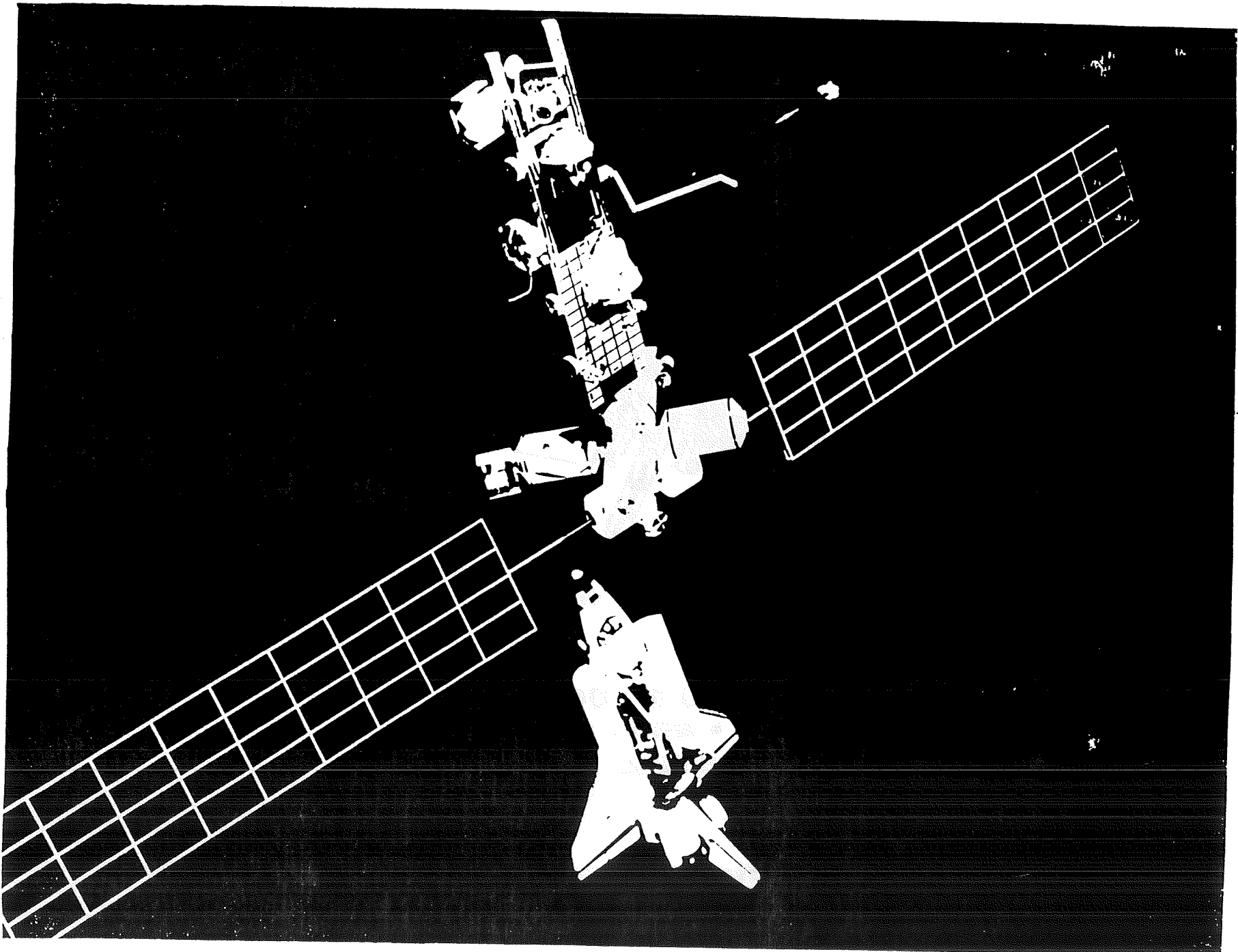


## 3 Chosen for Detailed Study



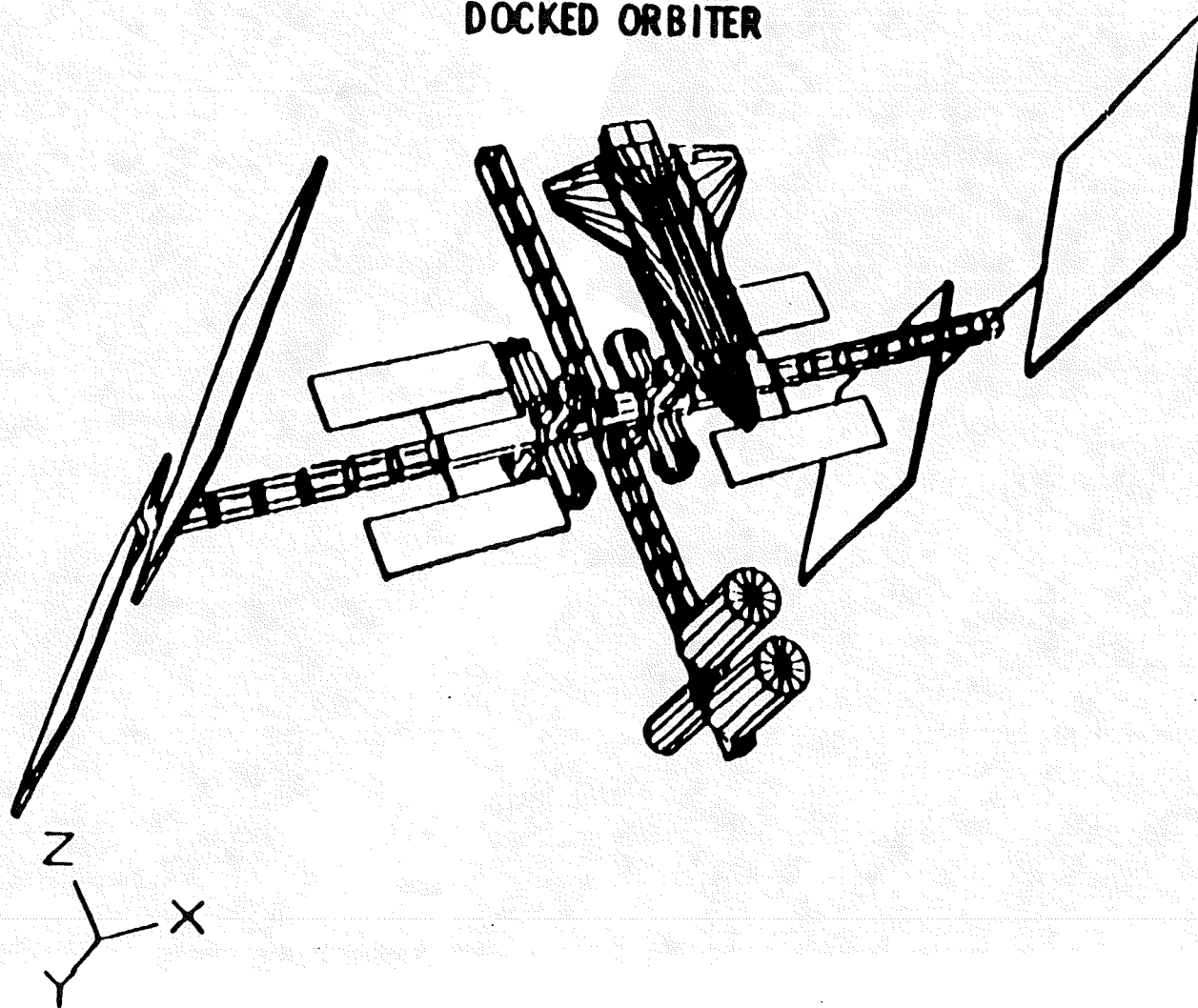




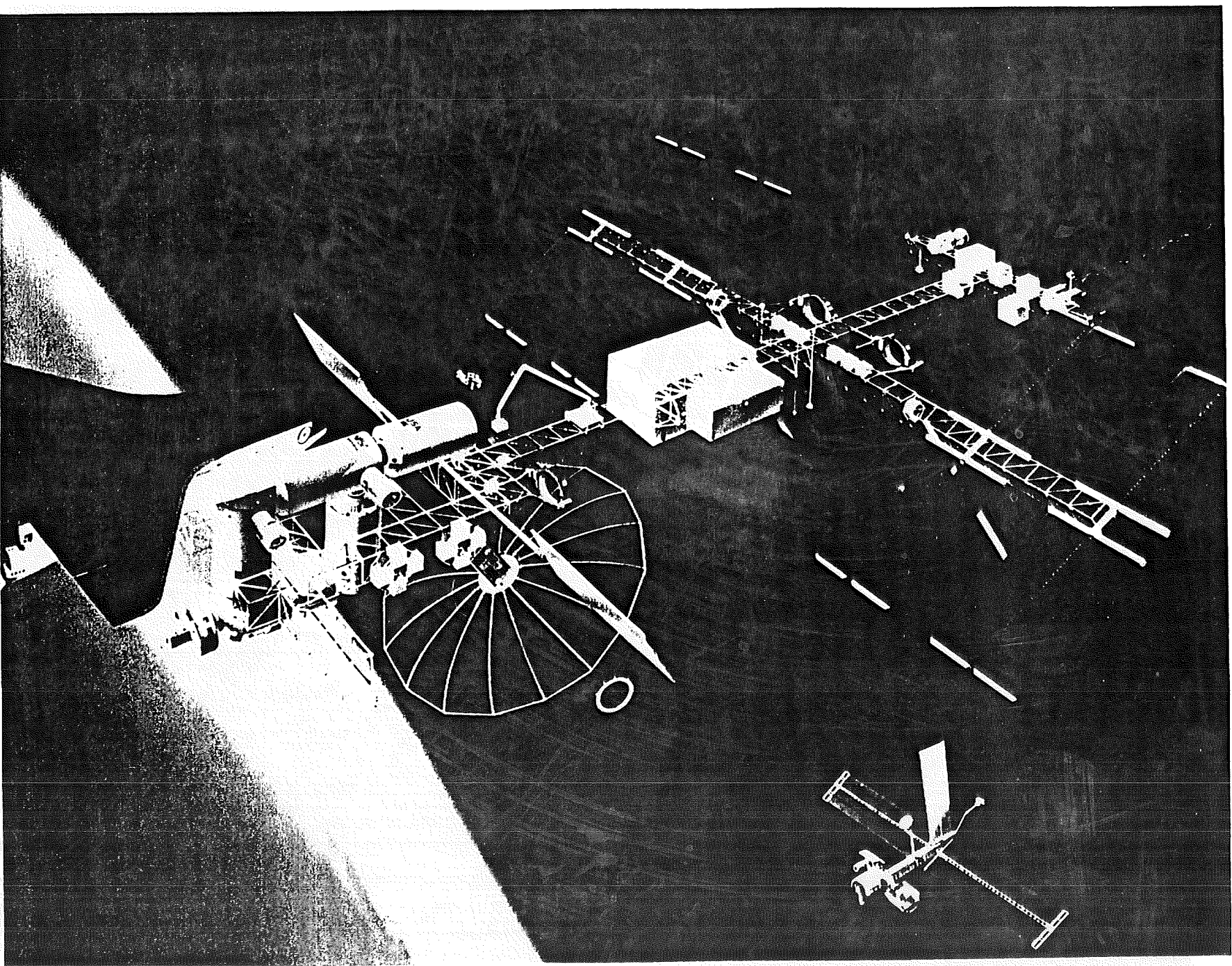


# CDG - AXIAL RADIAL BASELINE

GROWTH  
 $\beta = \beta_{\max} = 52^\circ$   
DOCKED ORBITER

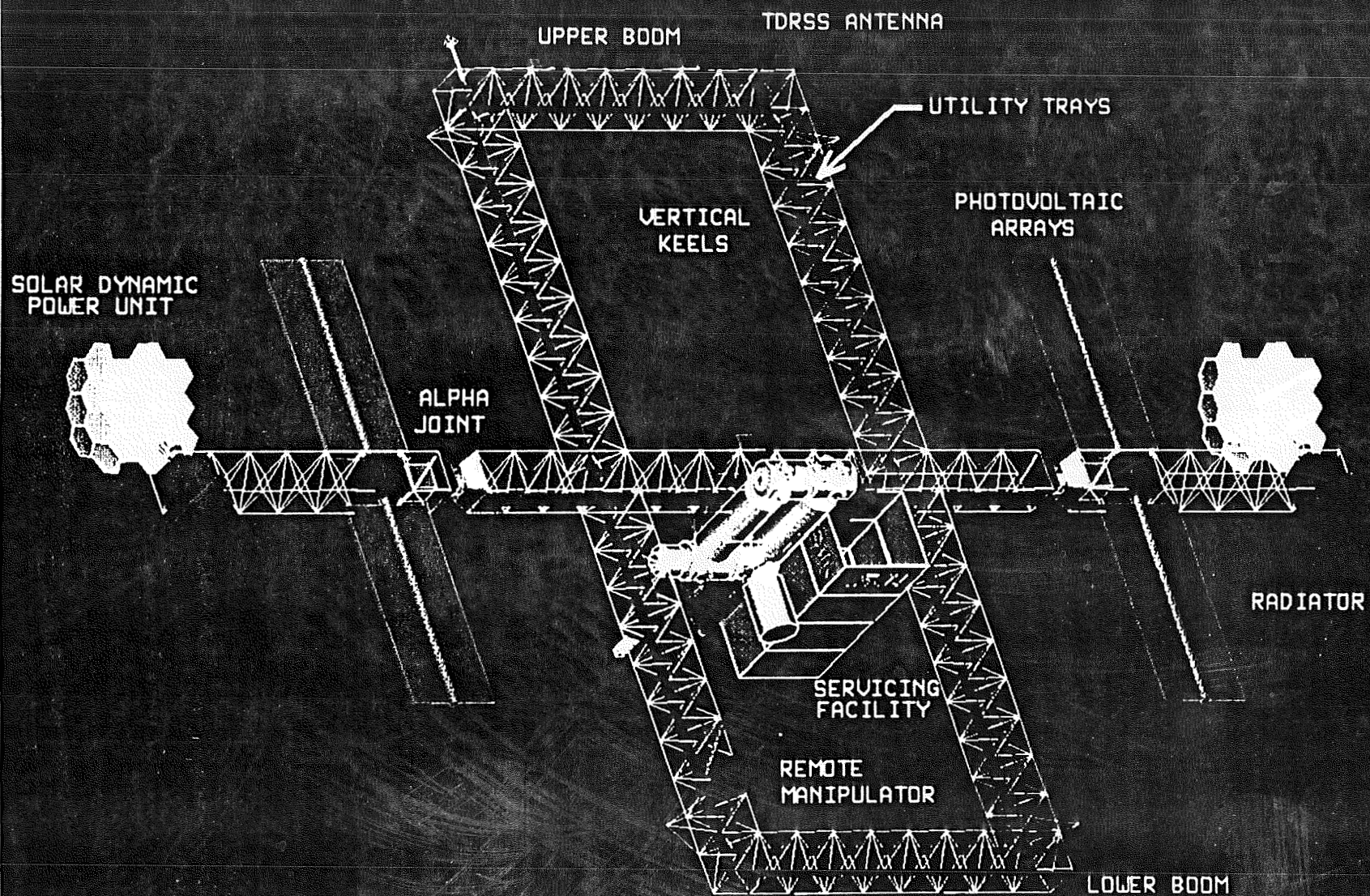






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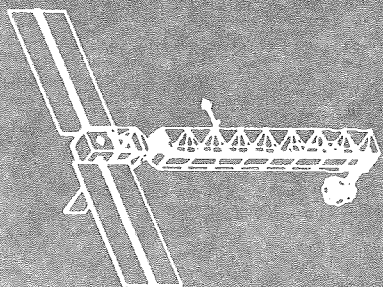
CRITICAL EVALUATION TASK FORCE (CETF)  
FINAL ASSEMBLY CONFIGURATION



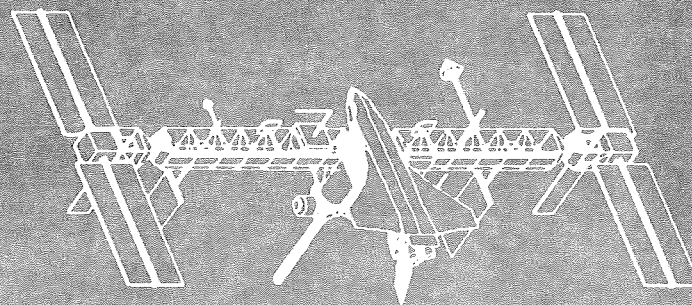
LORC SPACE DIRECTORATE  
SEPTEMBER 1986



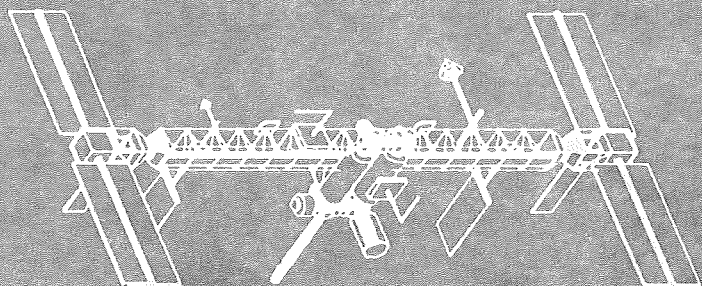
# ASSEMBLY SEQUENCE HIGHLIGHTS



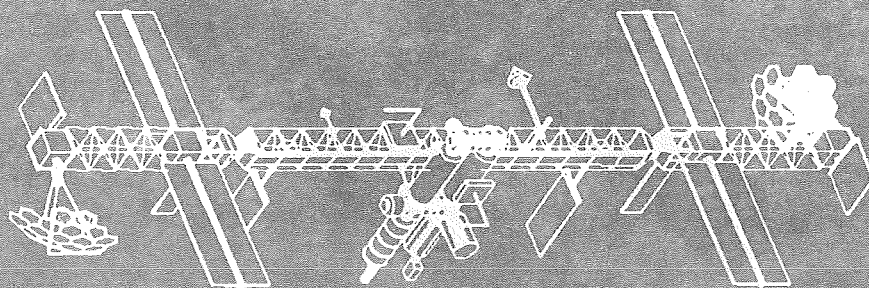
ASSEMBLY FLIGHT 1



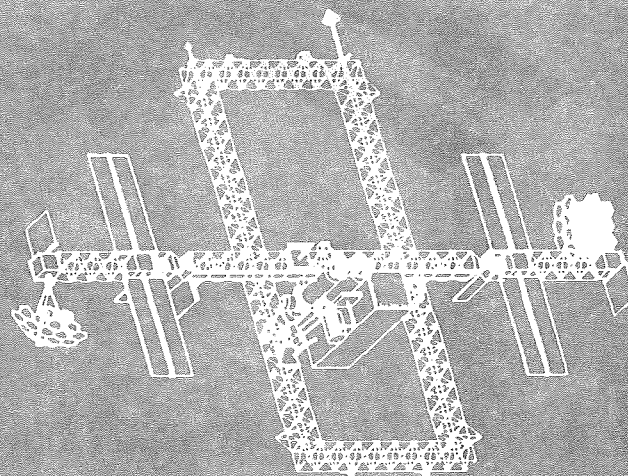
ASSEMBLY FLIGHT 5  
(MAIN TENDED CAPABILITY)



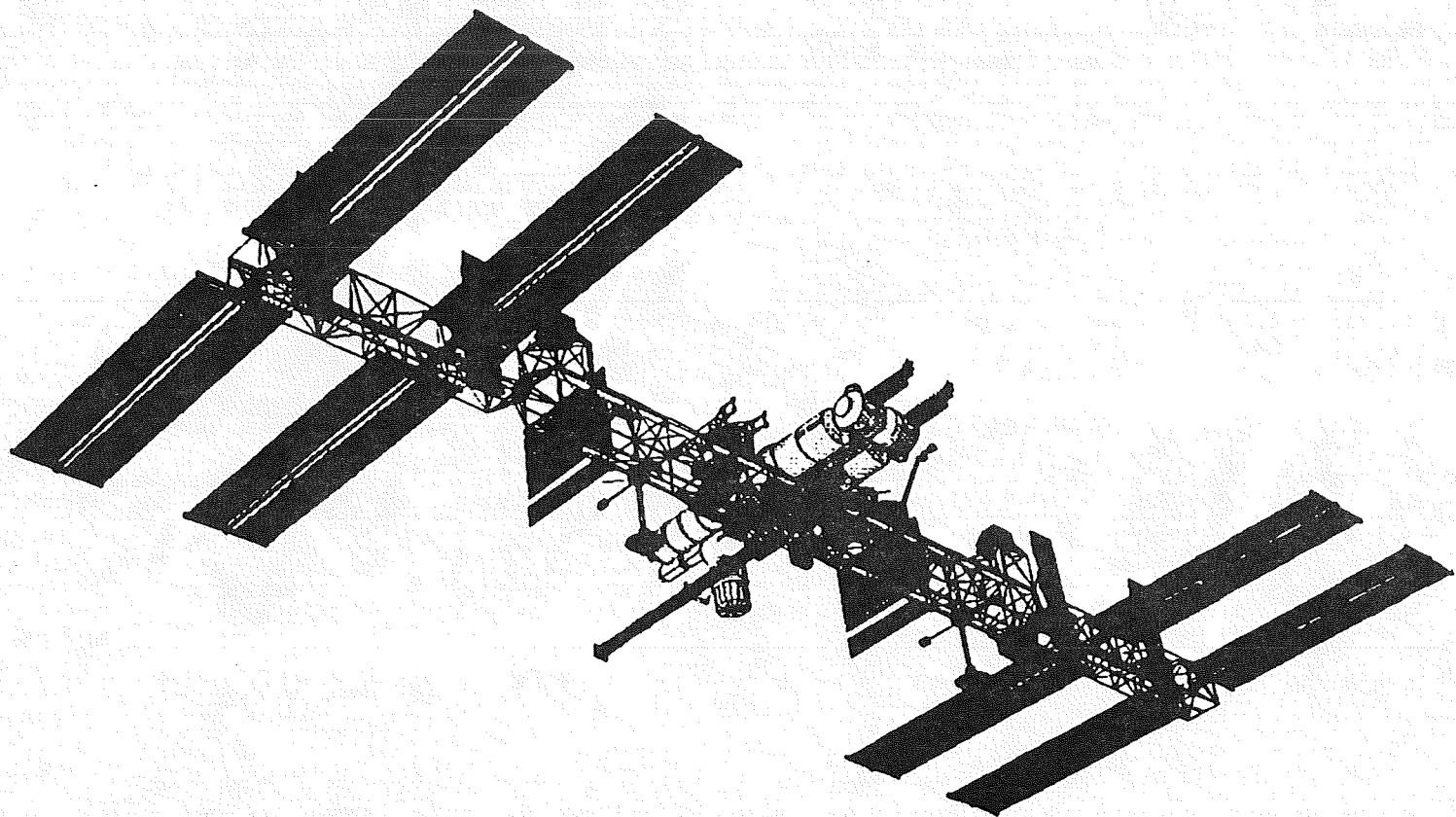
ASSEMBLY FLIGHT 8  
(PERMANENTLY MANNED CAPABILITY)



ASSEMBLY FLIGHT 11  
(INTERNATIONAL PARTICIPATION)

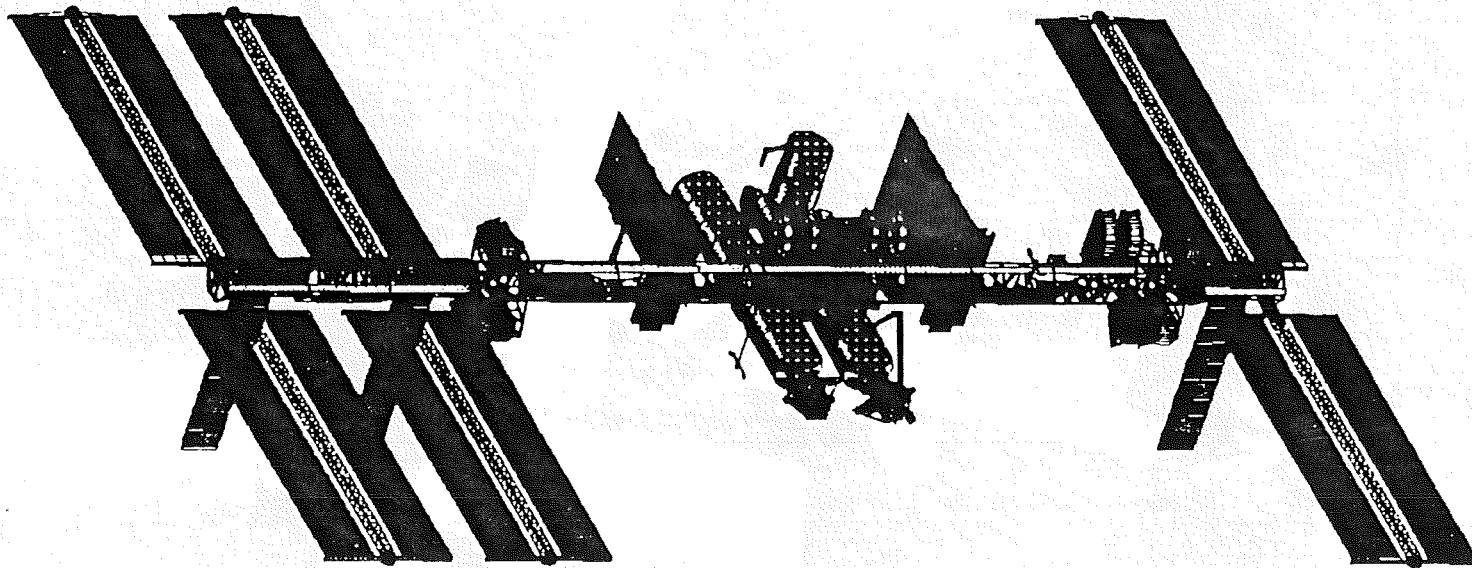


ASSEMBLY COMPLETE-FLIGHT 17





## Permanently Manned Configuration



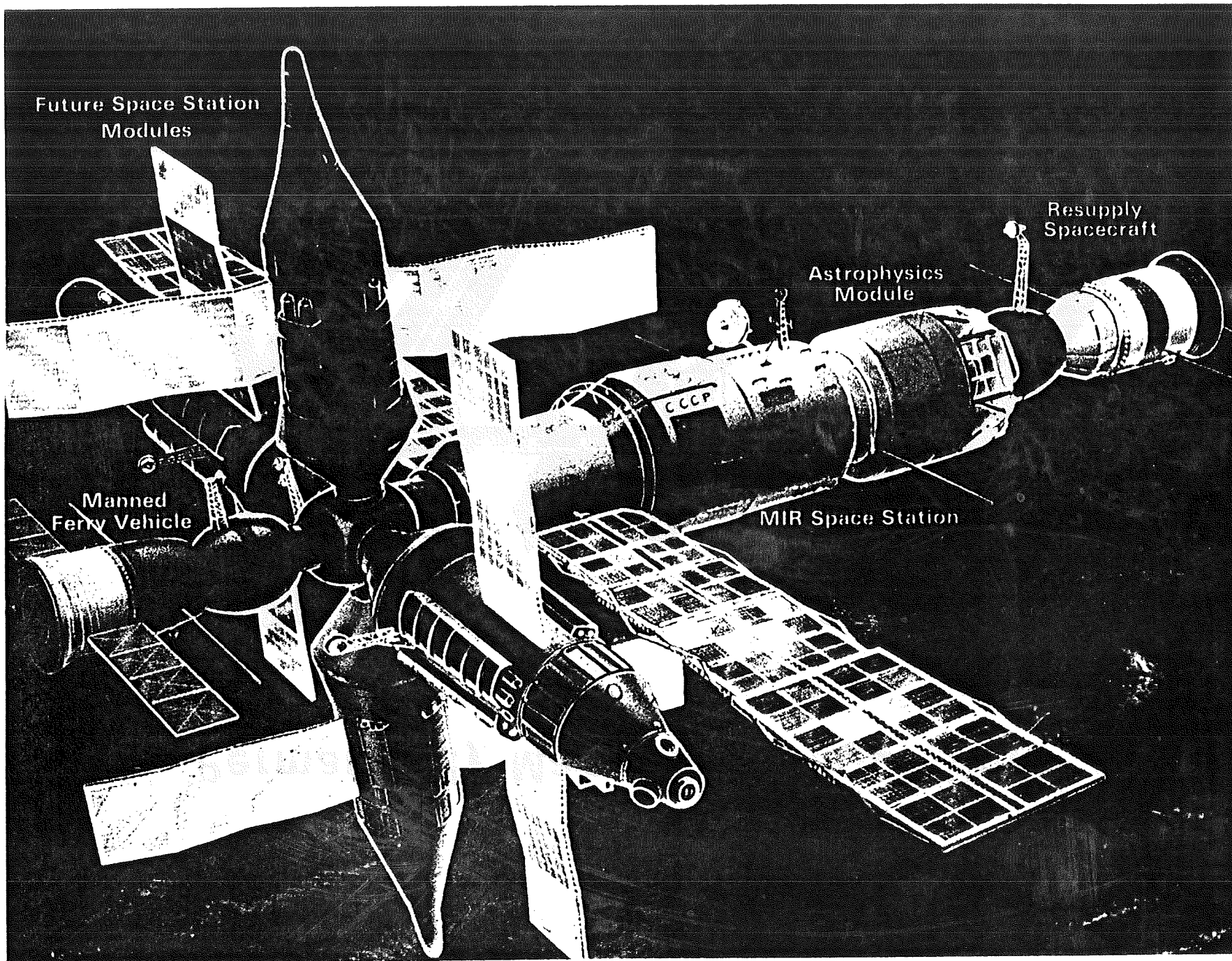
Future Space Station  
Modules

Resupply  
Spacecraft

Astrophysics  
Module

MIR Space Station

Manned  
Ferry Vehicle





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